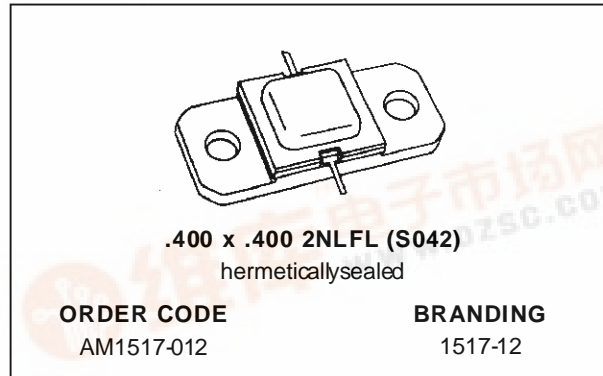




# AM1517-012

## RF & MICROWAVE TRANSISTORS SATELLITE COMMUNICATIONS APPLICATIONS

- REFRACTORY/GOLD METALLIZATION
- EMITTER SITE BALLASTED
- ∞:1 VSWR CAPABILITY
- LOW THERMAL RESISTANCE
- INPUT/OUTPUT MATCHING
- METAL/CERAMIC HERMETIC PACKAGE
- P<sub>OUT</sub> = 12 W MIN. WITH 8.5 dB GAIN

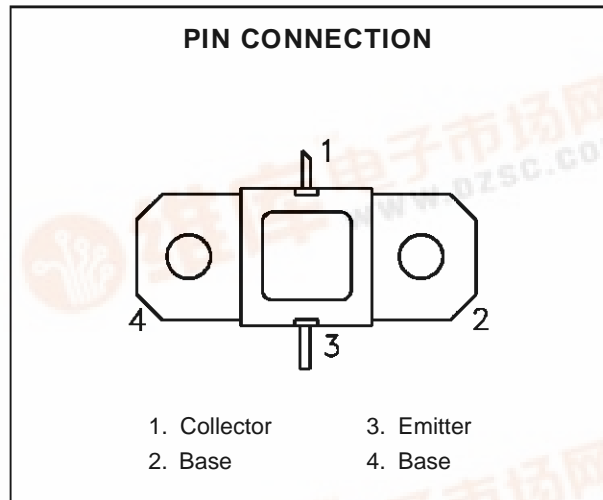


### DESCRIPTION

The AM1517-012 power transistor is designed specifically for Satellite communications applications in the 1.5 – 1.7 GHz frequency range.

The device is capable of withstanding any mismatch load condition at any phase angle (VSWR ∞:1) under full rated conditions. The unit is an overlay, emitter site ballasted, geometry utilizing a Refractory/Gold metallization system.

The AM1517-012 is supplied in the AMPAC™ Hermetic/Ceramic package with internal Input/Output matching structures.



### ABSOLUTE MAXIMUM RATINGS (T<sub>case</sub> = 25°C)

Symbol	Parameter	Value	Unit
P <sub>DISS</sub>	Power Dissipation* (T <sub>c</sub> ≤ 100°C)	27	W
I <sub>c</sub>	Device Current*	1.25	A
V <sub>CC</sub>	Collector-Supply Voltage*	30	V
T <sub>J</sub>	Junction Temperature	200	°C
T <sub>STG</sub>	Storage Temperature	- 65 to +200	°C

### THERMAL DATA

R <sub>TH(j-c)</sub>	Junction-Case Thermal Resistance*	5.5	°C/W
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\*Applies only to rated RF amplifier operation



## AM1517-012

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### ELECTRICAL SPECIFICATIONS (T<sub>case</sub> = 25°C)

#### STATIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
BV <sub>CB0</sub>	I <sub>C</sub> = 4mA	I <sub>E</sub> = 0mA	45	—	—	V	
BV <sub>EB0</sub>	I <sub>E</sub> = 4mA	I <sub>C</sub> = 0mA	3.0	—	—	V	
I <sub>CB0</sub>	V <sub>CB</sub> = 28V		—	—	1	mA	
h <sub>FE</sub>	V <sub>CE</sub> = 5V	I <sub>C</sub> = .8A	15	—	150	—	

#### DYNAMIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P <sub>OUT</sub>	f = 1.5 — 1.7GHz	P <sub>IN</sub> = 1.7W	V <sub>CC</sub> = 28V	12	13	—	W
η <sub>c</sub>	f = 1.5 — 1.7GHz	P <sub>IN</sub> = 1.7W	V <sub>CC</sub> = 28V	55	58	—	%
G <sub>P</sub>	f = 1.5 — 1.7GHz	P <sub>IN</sub> = 1.7W	V <sub>CC</sub> = 28V	8.5	—	—	dB

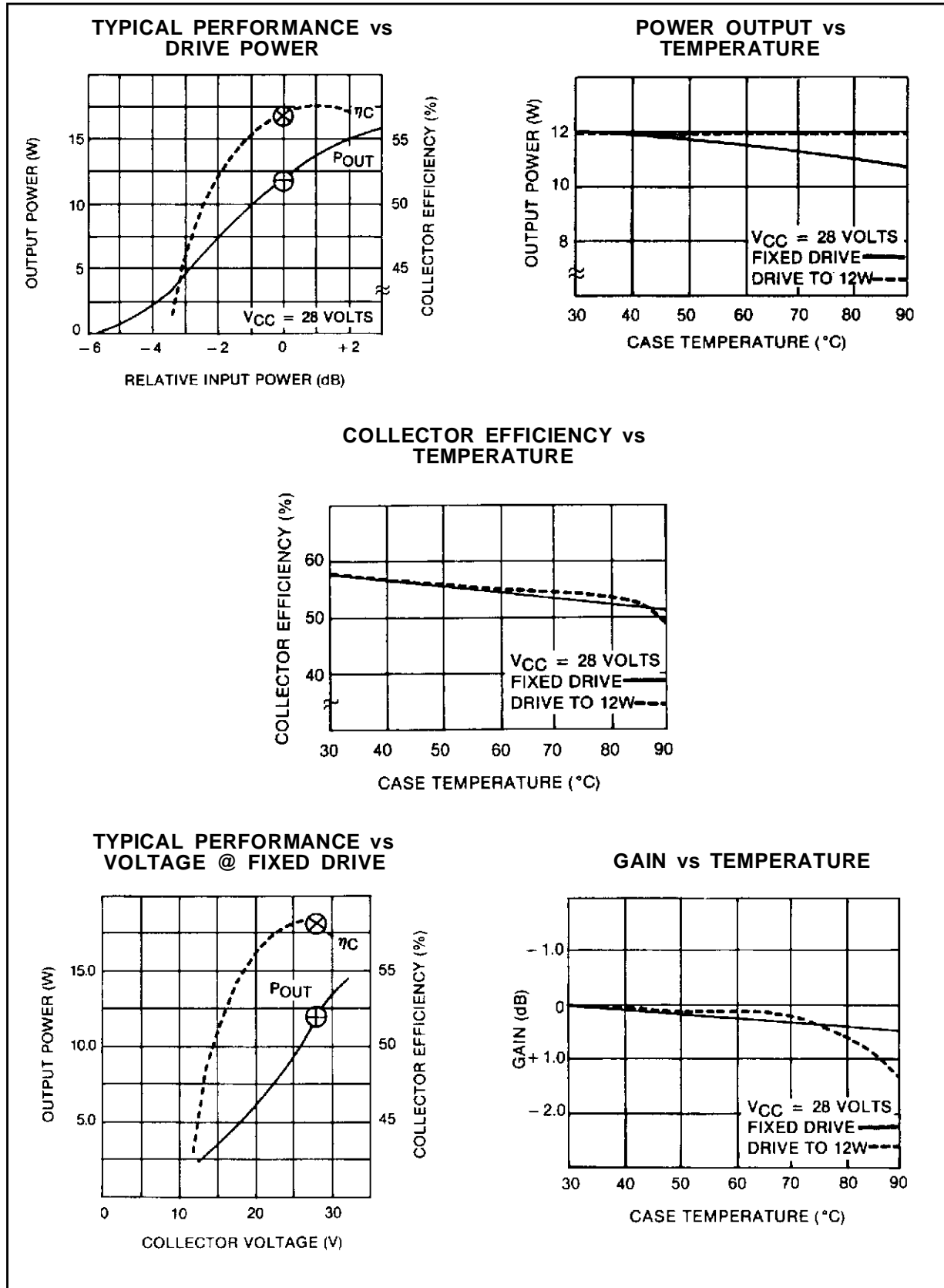
Note: AM1517 series vary P<sub>IN</sub> to achieve P<sub>OUT</sub>; performance guaranteed in 50 MHz increments.  
Alpha-Suffix added to AM1517 P/N designates band segment.

A -1500 = 1550 MHz

M -1620 = 1660 MHz

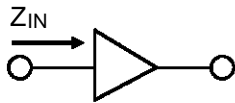
S -1625 = 1675 MHz

TYPICAL PERFORMANCE

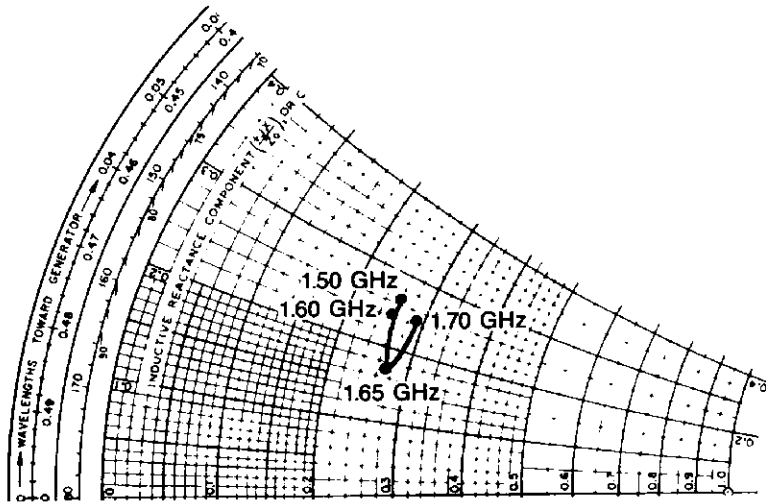


IMPEDANCE DATA

TYPICAL INPUT IMPEDANCE

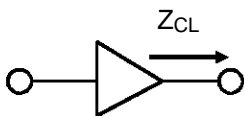


$P_{OUT} = 12\text{ W}$   
 $V_{CC} = 28\text{ V}$   
 $Z_0 = 50\text{ ohms}$

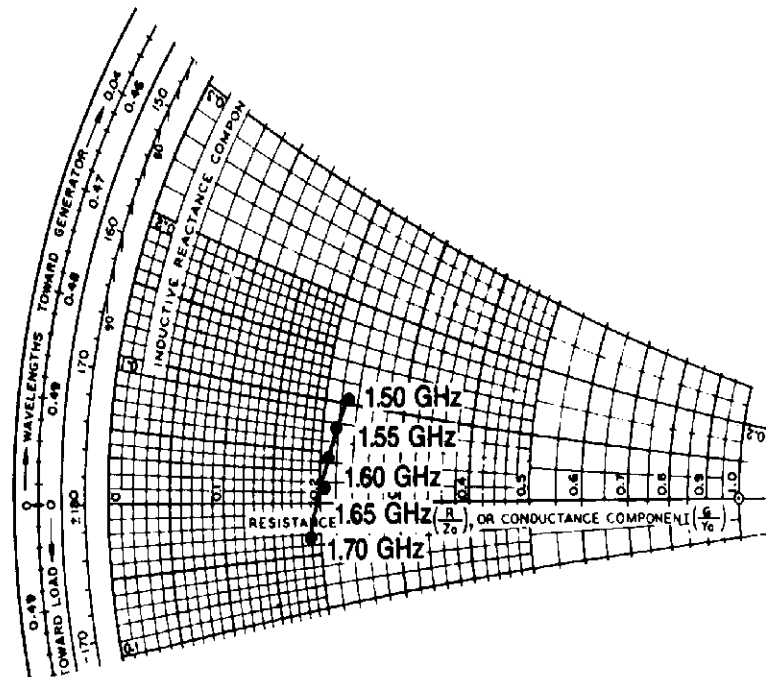


FREQ.	$Z_{IN} (\Omega)$	$Z_{CL} (\Omega)$
L = 1.50 GHz	$13.0 + j 13.5$	$11.5 + j 5.0$
M = 1.60 GHz	$13.0 + j 12.0$	$10.5 + j 2.2$
H = 1.70 GHz	$14.5 + j 12.5$	$9.5 - j 1.5$

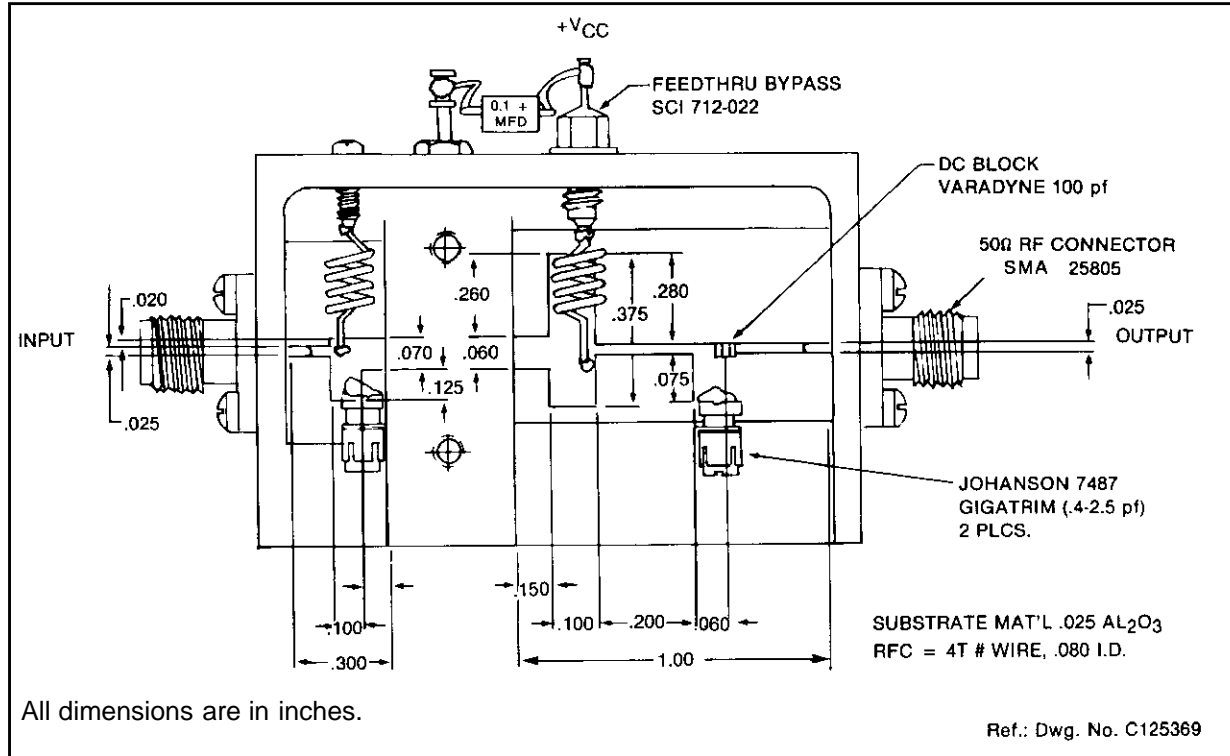
TYPICAL COLLECTOR LOAD IMPEDANCE



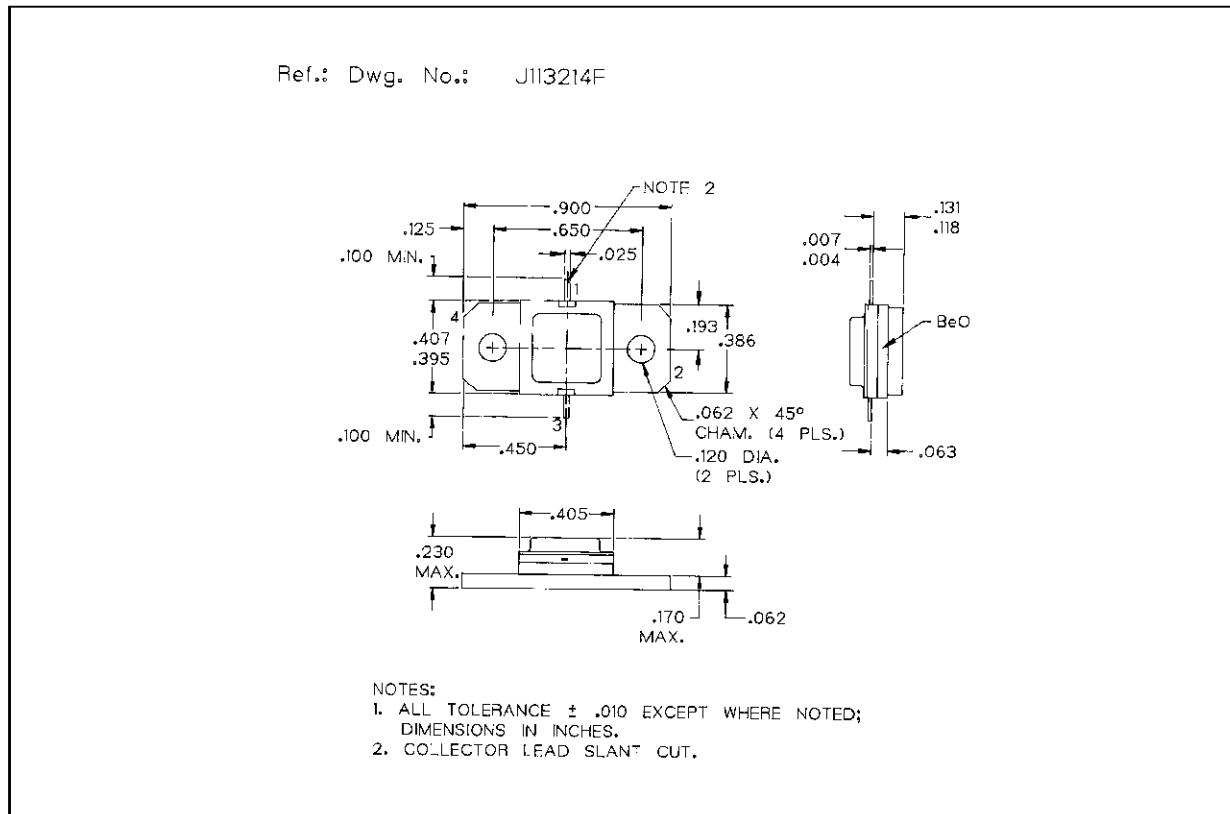
$P_{OUT} = 12\text{ W}$   
 $V_{CC} = 28\text{ V}$   
 $Z_0 = 50\text{ ohms}$



TEST CIRCUIT



PACKAGE MECHANICAL DATA



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